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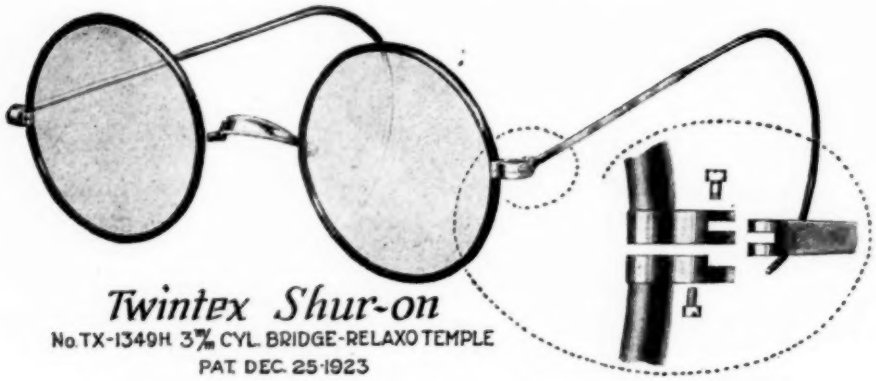

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A STUDY OF HIGH DEGREES OF ESOPHORIA AND THE APPLICATION OF OCULO-PRISM TREATMENTS

J. I. Kurtz, B.Sc., A.O., F.A.A.O.
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Esophoria is an anomaly, which the refractionist is called upon to correct in his daily practice. That this is the most difficult form of muscular defect to treat is agreed upon by all those engaged in this work. Authorities on this subject do not seem to agree upon the methods of treating esophoria as well as on the results obtained. Some writers have repeatedly made the statement that muscle treatment in esophoria is a waste of time and energy, while others to the contrary, claim to get good results by using various methods.

To meet with any degree of success in the treatment of esophoria, there are certain facts to be established by the examiner before a proper diagnosis and prognosis can be made. According to Savage it is important to determine the type of esophoria the consultant has; whether it is intrinsic or pseudo; stenic or asthenic. It is not sufficient to find out merely the quantity of esophoria, but the quality as well. A consultant having 10 degrees of esophoria and 12 P.D. of abduction will respond to muscular treatments differently than one having the same amount and kind of muscle imbalance with a very low degree of abduction. The physical condition of the consultant as well as his mental state are important factors not to be overlooked when oculo-prism treatments, especially for esophoria, are contemplated. Robinson maintains that "a deficient innervation in the extrinsic ocular muscles due to a state of general nervous debility, or to a condition of anemia, should not be expected to respond readily to and at times even perceptibly to ocular prism treatment. It is apparent, of course, that any local stimulation afforded by ocular muscle exercise is so slight in comparison to the stimulation required by the entire body that its effect or influence becomes quickly dissipated, but what is more obvious is the fact that the body itself which represents the reservoir of nervous energy, is already so thoroughly depleted that it fails to supply even the limited energy necessary to support a successful course of muscular exercise."

It is well before deciding on muscular treatments to determine the underlying cause of the esophoria in that particular case. The causes may be:

1. Over-developed interni.
2. Under-developed externi.
3. Abnormally short interni.
4. Abnormally long externi.
5. Interni may be attached too far forward.
6. Externi may be attached too far from the corneal margin.
7. Over-development of the third conjugate innervation center, which is sending excessive nerve impulse to the interni.

The proper determination of the kind of esophoria the consultant has and the establishing of the exact cause is, in many cases, taxing to the patience and ingenuity of the examiner. For a full discussion on the causes and kinds of esophoria the reader is referred to the chapter on this subject in "Ophthalmic Myology" by Savage.

Treatment of Esophoria

The degree of esophoria as well as the age at which treatment may be successfully undertaken seem to be a point of disagreement between different authorities. Thorington claims that treatments for esophoria should not be undertaken in older persons especially those of presbyopic age; while Hazen claims to have attained good results with patients who were 65 years old. Savage maintains that 4 P.D. is the maximum amount of esophoria which will yield to prism exercises. The writer, however, found in recent experimentation that much

In both Figures 1 and 2 the solid line represents the stage of esophoria before each treatment. The dotted line, as numbered horizontally, represents, above the zero line the amount of prism base out necessary to overcome horizontal diplopia, below the zero line, the amount of abduction developed.

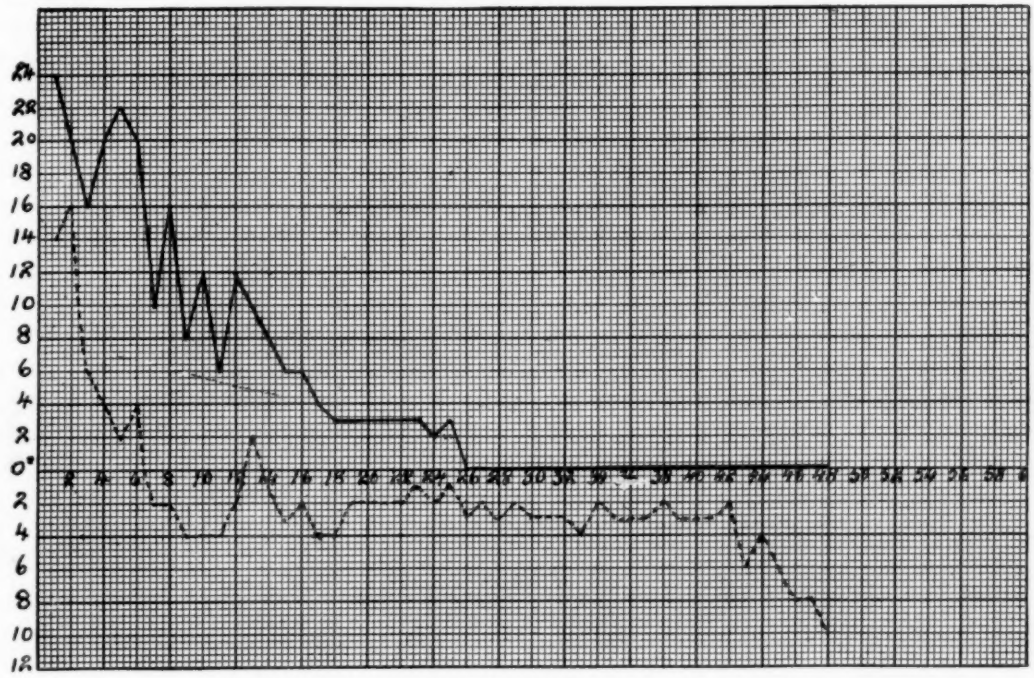

Figure 1

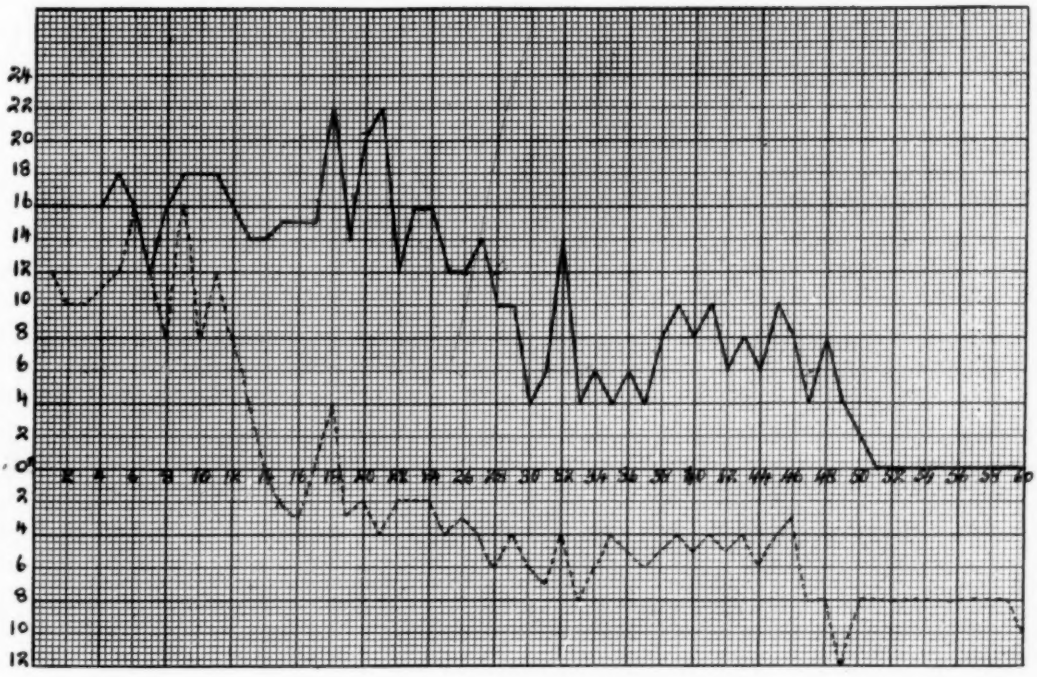

Figure 2

higher degrees of esophoria will yield to treatment; he also finds that treatment may be successfully carried out even at the presbyopic age. The two cases cited, which were taken from the writer's active file, will bear out this treatment.

Case 1. Miss S., age 14, high school student, called for an examination August 25, 1924. Static retinoscopy revealed O.D.+3.00 D. sph. ()+1.50 D. cyl. axis 90; O.S.+3.00 D. sph. ()+ 1.00 D. cyl. axis 90. Dynamic retinoscopy findings were O.D.+5.00 D.

sph. ()+1.50 D. cyl. axis 90; O.S.+ 4.50 D. sph. ()+1.25 D. cyl. axis 90. The static retinoscopy findings were prescribed. The muscle tests showed 24 degrees of esophoria for distance and 20 degrees for the near. There was no abduction as it required 14 P.D. base out to establish binocular single vision. There was an amblyopic condition present in the right eye. The visual acuity of the right eye was 20/70 and that of the left eye was 20/20 with the correction in place. Amblyopic and oculo prism treatments were instituted which resulted in the complete disappearance of the esophoria and the abduction was built up to 10 P.D. The visual acuity in the amblyopic eye was brought up to normal at the end of the treatment period. Figure 1 shows step by step the progress made while administering the treatments as it appears on the record.

It will be noted that at the time the first treatment was given there were 24 degrees of esophoria. It took 26 treatments for the esophoria to disappear. The amount of esophoria from that day on remained zero as shown by the graph. It will also be noted that at the time of the first treatment there was no abduction power and that it required 14 P.D. base out to overcome the horizontal diplopia. All of the diplopia disappeared after 15 treatments. The abduction registered zero. From that day on until the end of the treatments when the case was dismissed the abduction was built up to 10 P.D.

Case 2. Mrs. G., housewife, age 44, called at the office for an examination on August 12th, 1924, complained of frontal, temporal headaches, intraocular pains and blurred vision. Was wearing +1.50 D. sph. O.U. This was prescribed under a cycloplegic by one of the leading ophthalmologists in this state. Upon examination static retinoscopy revealed +2.25 D. sph. O.U., dynamic retinoscopy gave O.U. +5.00 D. sph. Vision without lenses was O.U. 20/200. With a +2.00 D. sph., vision was brought up to O.D. 20/40, O.S. 20/30. Same was prescribed. The muscle test revealed 16 degrees of esophoria at near and distance. The abduction power was nil, in fact it took 12 P.D. base out to overcome the horizontal diplopia. The consultant could not and would not tolerate an increase of the spherical power in the correction nor the addition of prisms base out. Oculo-prism treatments were then decided upon and carried out. This resulted in the **complete disappearance of the esophoria and the building up of the abduction to normal.**

Figure 2 shows that at the first treatment there were 16 degrees of esophoria which disappeared entirely after 50 treatments were given. It remained at zero until the case was dismissed. After 60 treatments in all. It will also be noted that at the time of the first treatment there was no abduction present, but a diplopia which entirely disappeared between the fourteenth and eighteenth treatment. From that time on until the case was dismissed the abduction was built up from zero to 12 prism diopters.

A study of Figures 1 and 2 will reveal that it took twice as many treatments to reduce the esophoria to zero in the second case as compared with the first case. Also that the line representing esophoria in the chart of Case 1 is more steady in its downward direction and does not have nearly as many up and down fluctuations as is found in the chart of Case 2. This may be due to the fact that Miss S. is young and healthy and, therefore, responds more readily to treatments, also the progress and improvement is more rapid and steady than in the case of Mrs. G., who is 44 years old, nervous and erratic. While there has been a considerable degree of fluctuation in the amount of esophoria in these two cases there is, however, one point in common to both, i. e., after the esophoria has once been reduced to zero it remained at that point without any change until the cases were dismissed as can be seen in both figures.

Conclusions

1. That high degrees of esophoria can be successfully cured with the application of oculo-prism treatments.
2. That the time element in these cases is of considerable importance. The consultant must be made to realize that relief will not come immediately and that he must be willing to cooperate and continue the treatments until satisfactory results are obtained.
3. Success in the treatment of high degrees of esophoria may be attained not only in cases of young children but in older persons as well.

SOME ORIGINAL IDEAS ON MUSCULAR ANOMALIES

J. W. Parker, Opt.D.
Kansas City, Mo.

Any optometrist who has attempted to treat cases of muscular imbalance will readily admit that in so doing he has met with many apparently contradictory conditions. For instance, it quite frequently happens that the duction test and the Maddox or similar tests do not agree. We also find cases in which the duction test, made in the orthodox manner, would indicate that the patient should have all kinds of trouble; yet, when the refractive errors have been taken care of no complaint is made.

I was first induced to give this phase of optometry serious consideration through having developed a bad case of imbalance personally. In making the various tests in my own case I found so many conflicting results that I became fully convinced that the authorities up to that time were about as much in the dark as any of us. After mastering my own case I made it a rule for several years to never refract a case without also testing the muscles and keeping a complete record. In such cases as seemed to require treatment, I kept a very strict and comprehensive record of treatments given, results obtained from each treatment and all data which might have any bearing on the case.

My experiences have led me to believe that the most of our troubles come from making duction tests under wrong conditions and from being misled by the Maddox test. In making the Maddox test for lateral deviations in the usual manner we first remove the accommodative stimulus by correcting all refractive errors. The Maddox rod itself is supposed to remove the fusion stimulus. This being accomplished, let us pause a moment and analyze the situation. Are we not testing "dead" muscles? A muscle devoid of all innervation is to all intents and purposes dead. The most our test could show under those conditions would be the relative length of the internal and external recti.

In making the duction test by having the patient look at a distant light we do not remove the fusion stimulus, but by the orthodox method we do eliminate the accommodation. We try to find the converging power with the accommodation at rest and yet no one, under normal conditions, uses the convergence without also using the accommodation — total presbyopes and certain myopes excepted.

Such tests are very deceptive for the reason that both the accommodation and the desire for perfect fusion are both stimuli toward convergence. It is also a well-known fact that in some cases the stimulus is much greater than in others. The writer shows an abnormal adductive power which seems to be stimulated more by the fusion center than by the accommodation. At the reading point, there is a very decided exophoria with the fusion stimulus removed. Exerting the accommodation to the limit fails to remove the exophoria, although it becomes less. With the Maddox test at twenty feet there is shown about 3 P. D. esophoria. This would indicate an undercorrection for hyperopia, but in this particular case there is evidently some other cause. Possibly an actual shortness of the internal recti.

To sum up, the most reliable test we have for the lateral muscles seems to be the duction test if properly made. We use the abduction mostly with the accommodation pretty much relaxed. To be explicit, we do not use it at all. What I really had in mind was, we use the external recti more at a distance than in reading.

Our convergence is used co-ordinate with the accommodation. It would seem to follow, then, that we should test accordingly. In testing for adduction at twenty feet we should add to the refractive correction a pair of minus spheres equal in strength to the amount of accommodation used at the reading point, —2.50 for the non-presbyope and for the presbyope a pair which would neutralize the presbyopic addition. In this way we get the actual adductive power under the conditions in which it would be needed.

In testing for the abduction it might be more scientific to allow the accommodation to relax.

The ratio of three to one for adduction and abduction is perhaps an ideal one. The most important thing, however, is that both are sufficient. The fusion stimulus will generally take care of quite a little excess of one over the other. Where either is weak enough to require treatment the first thought should be a persistent and systematic exercise. Prisms should be the last resort. Methods of exercise and hyperphorias will be discussed in a later issue.

HOW ARE YOU ADDRESSED, AND HOW DO YOU ADDRESS YOURSELF?

F. McFadden, Opt.D., F.A.A.O.
Athol, Mass.

For a quarter century and more, optometry has addressed itself to the intricate problems of recognition. As we have made a definite yearly progress in education, in our community standing, in public appreciation, this recognition has made a like proportionate advance. Because we have definitely defined the word **optician** it has somewhat subsided, and "optometrist" has come rather to the front of the stage, but we still lack in public appreciation of the essential difference between the one who refracts and the one who makes and dispenses optical material.

No one is as much at fault for this himself. In his desire to be professional, very strictly professional, he has followed custom to his own detriment. In his desire to segregate himself from forms of trade he has gone too far and lost his stance. However little popularity the word "optometrist" may hold, nevertheless it is here to stay, to be attached **to** us, and to **be** used by us, henceforth and forever. It has received several million dollars worth of advertising, has gone into years of literature, is used in reference works, and could not be blasted out of civilization by all the nitrates in existence.

There is nothing for optometrists to do but to address themselves to optometry. Year by year the number of outright optometrists increases, and it will be but a very little time now, before it will be wholly divorced from stores and other retail establishments. Optometry is not "becoming professional" but **has become.** That public recognition has not taken place more early is not the fault of the public but that of optometry itself.

When we learn to appreciate ourselves and to command our own collective respect we shall have no fault whatever to find with that of the public.

Self respect takes on a myriad of forms—public, private, personal, scholarly, business, professional, in every hue and shade, but we must believe in ourselves in order to have the public believe in us. Many have acquired a very thorough education along the various branches of science which comprise the field of optometry. This has been a long and stony road, one which had to be hewn from the very cliffs, cut through deep forests, thrown across barren wastes, projected over vast morasses. There was no path to follow, no guide to lead—it is a new science, this ocular science. The infinite problems of light and lenses must be applied to the human organ of sight. Anatomy, physiology, hygiene —these could be gleaned from medical works, but their application to vision must be carved from the living rock by study and experience. No college could give a degree, then or now, upon a subject as varied as optometry is, collectively.

We have no quarrel with medical practitioners who have undertaken refraction, they too were crying in the dark. In this uncharted course our founders of optometry have layed out a work which will not be completed for many a year, but they saw much that even we yet fail to understand. Their methods and instruments often seem crude and unwieldy to us who are somewhat better prepared, but it is our own fault that we do not prepare ourselves better and faster than we do. The public looks upon us as professional men, to a far greater extent than we realize. The public long ago looked upon the dentist in a strictly

professional sense and addressed him as a doctor, although there wasn't a dental college on the planet, or a man holding a degree capable of instructing, or presenting a doctorate degree, or any earthly way of fulfilling such a program.

Optometry has made far faster educational strides than dentistry, or than any other profession. Many and varied have been the study courses in the past, and these courses have deepened and widened with advancing years. But it is not any more an absolute necessity today than it was in the years and centuries past that an education must be imparted by a school, college, institution, or an instructor who already had stored up a mass of information with which heads could be annointed. We have not the space here to name, much less review the lives, of the many famous Americans who have not alone been prominent, but actual leaders in every branch of human endeavor, and yet have been denied a college or even a common school "education." These men have been the very advance guard of college courses which have led to degrees. Review the biographies of 100 or 200 prominent Americans during the last two centuries and see for yourselves!

Optometry not only can do this same thing, but is actually in the process today. It will be many years before the very young men now in our optical schools and colleges, who will probably graduate with a degree, will have advanced in understanding and wisdom now possessed by hundreds, perhaps I had better have said thousands, of optometrists now practicing this most intricate art, ocular refraction. We are preparing them for a doctorate degree but the very fundamentals of their education is drawn from our own vitals, since there is no other source whatever. The public believes this, and believes in us, for we have shown ourselves worthy and well qualified, duly and truly prepared.

There is no gentler term than "shirking" when we fail to take our stand before mankind and declare ourselves skilled in the profession of ocular refraction. We think well of ourselves, of each other in a professional sense, and of our calling. In view of all these facts we should cast off all other titles than that of "optometrist" relegating neurologist and specialist in this-that-the-other glomerations of words to the attic or scrap heap.

Behind closed doors we timidly address each other as "doctor," but we lack the moral courage to whisper it in the wind—just because of something dire. Our telephone rings and we step briskly up to say: "Yes?" When we should say: "This is Doctor Doe?" Or the consultant, following our own weak kneed custom says: "Is this **Mister** Doe, the optician?" and we should at once gently correct them by saying: "This is Doctor Doe, the optometrist—can I be of service to you?"

When we address each other in our own council chambers we should do so in terms of "doctor," never as "mister." It lacks truth, lacks dignity, and above all it lacks common sense. We are too bound down by "custom," not alone in optometry, but even in the very buttons on our coat sleeves, which date back to the days when lace cuffs were thus attached. Because many men have a degree or a string of them attached to their names, after half a lifetime in collegiate work is no reason whatever why everyone must think that his cognomen should always **follow along**—button wise. Not too long ago for us all to remember the medical man and the dentist had their business cards and "shingles" prepared with the prefix "Dr." to which there was no objection whatever. These men found that a slight change in custom was essential to differentiate them, which was wise; but that is no criterion whatever for us.

Broadly speaking, optometrists are well within their rights to prefix the title "Dr." provided they follow their name with the word "optometrist." This is all in the world that we need or want, for what more could be asked? Why should we "mister" ourselves and each other in print or on the platform? It seems only good sound common sense to have our names appear in advertising spaces, in directories, on our office doors, and our business cards, as "Dr. Richard E. Doe, Optometrist." It is wholly impossible to convey this meaning by saying "Richard E. Doe, D.O.S. (or Opt.D.)," for practically no one would ever guess its import. In every way that we possibly can we should henceforth and forever "lay off" this **mistering** of ourselves and our colleagues in public addresses, in conversation, and in print of all classifications.

PRACTICAL NOTES AND CURRENT REFRACTIVE TOPICS

R. M. Peckham, Opt. D., F. A. A. O.
Waterbury, Conn.

ROUTINE IN EXAMINATIONS

I was recently present at a demonstration purporting to give the correct routine that should be followed in making an examination. It was interesting to note that no phoria test was made until after the correcting lenses for distance vision were fitted. Then the phoria test showed the presence of esophoria, and that with the lenses in place. At once the question came to mind, "What is the examiner going to do about it." He did nothing. The examination was concluded with a cursory duction test at the distance, adduction and abduction. As adduction exceeded abduction in the ratio of two to one, the patient was dismissed without further investigation being made.

There was no test of the near work ability of the patient, since he was under the mystic age of 40, hence, supposedly, his distance glasses would meet all requirements. There was no comparison of the dynamic skiascopic findings with the static, at least I heard nothing about it. And if there had been, assuredly some discussion would have been called forth. For in esophoria there is always a marked difference between the dynamic and static restinoscopic findings. And it is but rarely that the esophoric person can be induced to accept for distance the lenses that he actually needs to do prolonged near work without fatigue. The exception is the individual whose distance abduction exceeds the adduction. In these cases, the full correction can usually be given at the first sitting, but these cases are very rare.

There can be no routine set forth for a properly conducted refractive examination. Each individual case must be worked out on its merits. Most of all, is the importance of driving straight to the point, it does not do to fatigue the patient. Not every test has to be made for every case. No test should be made that is not strictly in line with the unearthing of the problem immediately in hand. The refractionist should so skill himself in diagnosis that the first five minutes will reveal the course of his subsequent procedure. The correction must be found before the patient is exhausted, otherwise the correction is bound to prove unsatisfactory.

After the usual preliminaries, external eye, ophthalmometer, ophthalmoscope, etc., are out of the way, the first test should be the accommodative phoria test at distance. This will tell three quarters of the story, and govern subsequent steps.

A finding of accommodative esophoria, and we know at once that pretty nearly the full error is hidden by the accommodative tension. It is a fruitless waste of time to begin trying to find the distance correction. Begin at the near point, determine the reading correction first, then work out to the distance vision. If there is a hyperphoria with esophoria, the chances are fifty to one that it will disappear when the full correction is uncovered and worn. The only duction test that means anything at all in esophoria is the abduction at distance, which should be taken with prisms in equal amount over the two eyes. The esophore with a high abduction will not be greatly troubled with headaches. By high abduction with esophoria, I mean from 10 dioptres and upward. Adduction is always low with esophoria, due to nervous exhaustion. Give the patient full correction for near work, and adduction reserve will develop of itself. Don't be afraid of bifocals for the esophore, never mind his age. Take care of his near vision requirements.

A finding of exophoria means that we are to compare our dynamic and static retinoscopic findings. If they differ widely, we know we shall have to relax the convergence before we can make the two tests agree. We at once put two or three prism dioptres before each eye and proceed to remake our skiascopic test. That's a short cut that is well worth trying. In exophoria, we need to take the adduction test at the reading point, no other duction test is necessary, unless we suspicion hyperphoria.

In myopia, the near correction is the important point, not the distance correction. That comes out in short order after we get the reading correction for a starting point.

These are but suggestions as to means for shortening the examination period. A half hour in the chair is too much. The thing is to find out what we have to do, then do it as expeditiously as possible. Find the mark, then drive straight toward it.

Occasionally a case presents some unusual difficulty that cannot be mastered in short period. In these cases, above all else, fatigue must be avoided. If conditions are such that the patient cannot return on the succeeding day for completion of the examination, allow a rest period of half an hour or more. Don't try to show every patient every trick you have in the box. Most of them don't appreciate it, especially if they are so tired out in the process that all their nervous energy is used up.

EXTRA-OCULAR TESTS

The present agitation that optometrists, who are essentially specialists, should, without special scholastic training, add to their ocular examinations such extra-ocular tests as blood-pressure measurements, urinary analysis, etc., reminds me of Mr. Smythe (Smith until he sold some Florida swamp lots), who quite recently joined the Hill Crest Golf Club. A few days after his acceptance to membership, Smythe showed up on the club veranda, properly outfitted in the accepted golfing regalia, balloon knickers, checked stockings, sheik sweater, zebra-striped shoes, cap at correct rakish angle, a beautiful bag filled with handsome clubs. Conversation with a polite Old-Timer resulted in a match. At the tee-off, said Mr. Smythe, swinging his club, "This is my first game, but I reckon I'll get around in par." Somewhat startled at finding he had a tyro on his hands, Old-Timer queried, "How do you make that out?" "Oh," says Smythe, "I bought a book that tells how to do it."

It is easy enough to pump up the wind bag and get a pressure reading, but how is the unschooled man going to interpret that reading? Surely, he is not so simple as to believe or claim that the reading of one or two elementary books will make him sufficiently wise or sufficiently expert. If any optometrist is willing to go to the proper school and study the subject in all its ramifications under proper tuition, no one could or would object to his inclusion of the blood pressure test in his regular routine. The same applies to urinary analysis and other extra-ocular tests. But the optometrists of today who are striving for recognition of their profession as a specialty have a perfect right to most strenuously protest against the use of these tests by anyone designating himself as an optometrist, unless that individual has received competent instruction in those subjects. And "competent instruction" does not mean by correspondence courses.

No optometrist can hide behind the assertion that what he does, the methods he uses, are his own affair, that 'tis no one else's business. It is most vitally the business of organized optometry to safeguard its welfare. The just criticism was levelled at us for years that we were self-taught, without competent instruction. That criticism we have met by establishing our schools and raising our educational requirements. We are rapidly growing away from the days of the jeweler-optician, Jack of all trades, master of none. Honorable man though he was, the jeweler-optician had no time to make himself a thorough optometrist. Let none of our brothers of today bring down further reproach on our shoulders, let us all avoid any practice that will give cause for criticism that we are still playing at the Jack-of-all-trades game, that we are attempting that for which we have no ample training.

Careful attention to the story of complaints the patient tells, careful analysis of the phoria tests, will tell all we need to know as to the innervational resources and ability of the subject, and whether or not a pair of glasses will afford the desired relief. It is true that the person with high blood pressure, or the one with some forms of kidney disease, or those with decayed teeth, infected sinuses or tonsils, or any other disease leading to the aggregation of neuritides, cannot be successfully fitted with glasses. And we have to be on our guard lest we attempt such a task, for failure is sure,

and failure means our discredit. But there is great plenitude of other symptoms aside from the taking of the blood pressure test that will warn the shrewd observer. We never lose credit in the sight of our patients by insisting that we are specialists and that there are certain troubles of the body that lead to ocular symptoms whose origin is outside our special field and whose study belongs to other specialists.

UNEVENLY STRETCHED ZYL RIMS

Watch the spec wearers on a city street and note how many are wearing zylonite or sheltex frames in which one lens sets a little higher than the other. It is not easy to stretch these rims evenly. Very often there is a soft spot that gives more than the rest of the rim. This is one point that too many opticians and too many optometrists are careless about. I have seen jobs coming from high grade prescription houses with rims unevenly stretched.

Upper and lower halves of the rim must be stretched evenly. Otherwise, not only is the job going to look bad, but cylinders will be off axis and prismatic (artificial hyperphoria) effects will be induced. The eye should be trained to be able to see these inequalities when they occur. The only safe way to mount lenses in zylonite or shell rims is to carefully and accurately dot a line across the 0-180 meridian of each lens, exactly through the mechanical center. Then, if the rims are unevenly stretched, the lines on the two lenses will not make one continuous straight line from end-piece to end-piece.

If a rim does stretch unevenly, the side that is over-stretched should be heated and chilled, shrunk back to its original size, and the rim re-stretched. Sometimes, in shrinking, the side will shrink too much. Then that side alone must be stretched. This is easily done by slipping a piece of clock spring into the frame and holding the side to be stretched over the heater, keeping the opposite side cool.

If a frame is so badly uneven that it cannot be returned to even proportions, throw it away. It is tough luck to throw away a dollar bill, or more, that way. But it is cheaper than to deliver a bad job. The proud man will sacrifice a frame before he will let a poor piece of work leave his place.

PUPILLARY REACTION TO LIGHT

Measurements on the diameter of the pupil of the eye when observing an illuminated screen indicate for binocular vision a change from 2.4 mm. with an illumination of (37.2 ft.-c.) to 3.5 mm. with an illumination of (0.6 ft.-c.), and 4.85 mm. with an illumination of (0.04 ft.-c.), the diameter with no illumination increasing to 5.5 mm. Similar results were also obtained with one eye obscured.

F. P. B.

SPECIAL REPORTS

A FEW VISUAL RESEARCHES*

E. O. Fjelstad, Opt.D.
Minneapolis, Minn.

Experiments were made in photographing the movements of the human eye and they were found to be so rapid that an exposure of one-twentieth of a second was necessary to so photograph without disturbance to the eye or lid. The computed illumination necessary to get an instantaneous color photograph of the eye was approximately 10,000 ft. c. which is about that of midday sun illumination.

In tests for the effect of illumination on the diameter of the pupil it was found that with an illumination of 500 lux (approximately 50 ft. c.) the diameter of the pupil changed from 2.6 mm with the whole field visible to 3.35 mm with 2% of the field visible and 5 mm with 0.25% of the field visible. The illumination of 0.5 ft. c. values were 4 mm, 4.35 mm and 5.1 mm. With an illumination of 0.05 ft. c. the diameter did not change appreciably up to a diminution of the field to 0.5%. With 0.025% of the field visible the changing of the illumination from 50 ft. c. to 0.05 ft. c. changed the pupillary diameter from 5 to 5.3 mm. These tests were made with the center image of the background on the visual axis of the examined eye, the other eye being obscured.

In an attempt to explain the night vision of animals a quartz plate was cemented over a small opening in the retina of the enucleated eye and the spectrum of a cadmium arc was transmitted which in turn was photographed with a quartz spectrometer. In comparing the results with those of a human eye it was found that the transmission of ultra-violet light was much greater, the lens was more absorptive than the cornea and the humors were more transparent. This added transmission of ultra-violet in the eyes of nocturnal animals was accepted as the aid in night vision.

In explaining the sensibility curves of the eye the investigators believed, first, that the rods' exceptional adaptation to faint illuminations shows that the origin of the curves must be in an eye capable of functioning best at night; second, that the beginning of rod apparatus lies far back in race history as the maximum sensibility indicates a higher temperature of the sun then than now, and third, that the most probable explanation in the evolution of the rods in the eye is from water animals accustomed to visibility at great depths. The assumption then was that the cones came when the animal emerged from the water, grew a head and daylight vision was required.

Experiments showed that the convergence of the eyes, visual focus and the variation of accommodation as the eye sweeps over a field do not have a part in the appreciation of distance. It was found, also, that parallax is uncertain or breaks down when not assisted by perspective. It was concluded that there is no "mechanism" of stereoscopic vision depending upon binocular parallax but that "the perception of distance is a psychological function interpreting all details, similarities and differences in images in the two eyes in the light of previous association and experience.

*Being an abstract of the section relating to the Eye of the Report of the Committee of Progress for the year 1924-25 as reported in the Transactions of the Illuminating Engineering Society. Volume XX, No. 7, September, 1925.

THE EFFECT OF POOR VISION

F. P. Barr, Opt.D.
Rochester, N. Y.

"Could my vision be hampering my work without my knowing it, and would this interference be serious?" This was a question asked Dr. Barr a short time ago in a large eastern city, and his answer was as follows:

We can answer yes to both of the above questions. Owing to general lack of knowledge in regard to eye defects and their reflexes, it is readily understood why so many go through life suffering, unaware of the source of their trouble. Before we can determine upon the right method of relief for any ailment, we must have a knowledge of the thing or things which will produce the difficulty. To remove the cause is to eliminate the disturbance. Stuttering, stammering or even St. Vitus dance may be the result of eye disturbance. How many laymen know it. It isn't necessary to go blind before being hampered in your work from defective vision. Far from it. You may have boasted many times of your extremely keen vision and yet little did you realize that such vision was being secured at an immense cost to your nervous system. Your treasury of nerve energy will some day become depleted to a low water mark and you are then at the mercy of disease and ill health. Usually in conditions of this kind we find the beginning in the form of irritability, nervousness, excitability, detraction from work, sleeplessness, indigestion, constipation, etc. On the other hand you may be rather indifferent, slow, and have a tendency to procrastination. You may be exceptionally studious, but indifferent to the application of your learning. If your eye defects are such as cause of the condition of this type, we usually find a low acuity of vision for distance unless corrected with proper glasses. This type of eye sees much better for near work. Its optical system is arranged for near work without any further accommodation or effort, therefore the cause which produces nervous conditions in the first case are removed from the eye

adapted for clear close seeing. But the unfortunate part of it all is that an eye of this type is usually deformed and furthermore it cannot possibly through any muscular effort, adjust itself for distant vision. It absolutely requires glasses. Again it may be true that both eyes are slightly affected, perhaps in opposite directions or even along same line but one more than the other. It makes no difference how slight these deviations, their is a constant effort toward harmony. It is the continuous pull or drag that eventually exhausts. The point of a tack protruding upward through the inner sole of your shoe may not cause more than a noticeable disturbance, but if this agitation continues day after day the parts in contact become extremely irritating and produces a distressing disturbance. Whatever it may be that creates or prolongs discomfort should be removed. It requires nerve energy to combat it. Whatever the amount of nerve energy expended in any direction other than upon your labor is lost. Continuous loss means proportional failure. A traveling salesman for a silk manufacturing firm received this telegram: "Have your eyes examined and glasses fitted or come in." The man was very much astonished on receiving such a message and made it a point to investigate immediately. It so happened that on several occasions this salesman had sold large orders to the wholesaler and made a mistake, favorable to the purchaser, in reading his price list, therefore a big loss to his company. Losses from defective vision may be found in vision, nervousness, irritability, insomnia, extreme burning and aching of the eyes, then have them examined. We have people whose entire course in life has been misguided, unhappy, unprofitable, improperly developed, etc., simply because of defective vision. Even the friends and the associates of a person who have these are also unfortunate. Our losses either directly or indirectly affect others. Let us be sure then that our eyes are properly functioning so that we may secure the maximum service with a minimum expenditure of nerve energy. It is estimated that fully 87% of our education is secured through vision.

These figures show the importance of vision. So let us have comfortable vision that we may obtain the best in life that our existence may be quite more enjoyable, sweeter and that that refinement and enjoyment which are secured through harmonious and comfortable activities may truly be ours.

ABSTRACT DEPARTMENT

Optometric and ophthalmic journal articles and reprints to be abstracted should be sent to Dr. G. L. DuPlessis. Only papers on subjects of interest to optometrists will be reviewed in this department.

Intermittent Visual Perception. McFadden, F. American Journal of Physiologic Optics. Vol. V, No. 1. McFadden reports an interesting phenomenon which he observed during the course of muscles tests as made with the maddox rod. The phenomenon, which he terms suspenopsia, consists of a temporary suppression of vision in one eye ranging from a flicker to a period of several seconds. Sometimes this suppression quickly alternates from one eye to the other. This is involuntary on the part of the patient and no suggestion nor command can cause it to disappear, thus eliminating the possibility of auto-suggestion.

The author presents typical cases of suspenopsia. The first case is that of a lady who had lost her position through being unable to sew a straight seam on shoe leather. An alternating suspenopsia of two or three seconds caused her to fix her work first with one eye, then the other, thus causing the zig-zag effect. The second case was that of a man who, though he had all the attributes of binocular vision, failed to have stereoscopic vision due to suspenopsia. Other cases follow, that all exhibit a more or less great inability to see two images when diplopia is produced. Treatment, in some cases, was instituted with good results by means of an oscillating maddox rod and two colored discs.

The author points out that, although suspenopsia is often associated with muscular imbalances, it is not neces-

sarily so, as is reported in four cases. The condition is common but has not come under observation due to the minuteness of the intervals. According to the author, the possible explanation of this condition which is often present in eyes that we would call normal is that stereoscopic vision, a comparatively recent achievement of man, is easily disturbed due to its own complexity of adjustment. Or suspenopsia may indicate that vision is an interrupted rather than a continuous function.

The author recommends the test in routine refraction as the means of finding a possible waning of the fusion sense in certain patients and thus save later trouble by instituting early treatment. The article is illustrated with plates of the instruments designed by the author to graph the duration of the periods of suspenopsia and their intervals. G. L. DuP.

Voluntary Nystagmus. Kirby, Daniel B. American Journal of Ophthalmology, October, 1925.

Kirby reports two cases possessing the unusual ability to exhibit nystagmus voluntarily. Both patients were young when they came under observation, and had normal vision and musculature. It is assumed that the mechanism of its production lies in the conscious control of the supranuclear centers governing the associated movements of the eye in the horizontal plane. G. L. DuP.

Conical Cornea. Wescott Virgil. American Journal of Ophthalmology. October, 1925.

Wescott outlines the development of our knowledge of keratoconus from 1747 to this day. While the disease is comparatively easy to observe, its etiology has always remained obscure, hence, its treatment ineffective. The methods of treatment have mostly consisted of mechanical or surgical correction of the visual symptoms. Vision in most cases can be improved by concave spheres or cylinders and stenopaic holes are sometimes of value. The author reports a case where improvement was obtained with convex spheres and cylinders. G. L. DuP.

Headaches. Atkinson, T. J. The Official Bulletin of the Illinois State Society of Optometrists and the Chicago Optometric Society. Vol. 2, No. 4, pp. 196-197. 1924.

Atkinson classifies headaches into five general groups, as follows:

1. Muscular headaches. These, again, must be subdivided into two groups:

(a) Indurative headaches, due to fibrous deposits or nodes at the insertions of the muscles of the scalp. Mostly in the occipital region. These headaches are worse on motion and in wet weather, and when patient is fatigued, and nodes may be felt on palpitation, and are painful points on pressure.

(b) Spasmodic headaches, due to excessive or unusual use of groups of muscles. It is in this class that eyestrain headaches belong. One can always establish a direct relation between eyestrain headaches and use of the eyes. They are worse toward the end of the day, and relieved by rest of the eyes and sleep. They have a peculiar, sleepy, nauseating effect.

2. Toxic headaches. Due to absorption of toxins, either of infections or autotoxemia. Clinically, they fall into two classes, the severe headaches of acute infections, as at the beginning of serious infectious diseases (typhoid, scarlatina, etc.) and the milder headaches of chronic infections (tonsils, teeth, gall-bladder, etc.). Women suffer much from toxic headaches, due to pelvic infections. The toxic headache is dull, stupefying, has no relation to functioning, and is more or less continuous during waking hours. The discovery of an underlying infection conforms the diagnosis.

3. Nasal headaches. These are most likely to be mistaken for eyestrain. They are due to vacuum in the sinuses, obstruction in the nose (enlarged turbinat bones, deviated septum, etc.), and suppurative disease of the sinuses. Their guiding characteristic is that they occur in the morning, on waking, and disappear or moderate after the patient has been up and around for a few hours.

4. Circulatory headaches. The so-called congestive headache is no longer recognized. Circulatory headaches are due to lack of sufficient blood-nourishment to the brain, as in anemia, heart disease, arteriosclerosis, malaria, etc. This headache is characterized by

severe boring pain, usually on one side, with soreness of the scalp, lacrymation on the affected side. It is periodical, disappearing entirely in the intervals. Conclusive evidence is found in anemia of the fundus.

5. Nervous headaches. These are of two classes:

(a) Functional nervous headache, due to nervous imbalance, as seen in hysteria, enurasthenia, menopause, etc. It is characterized by an irregularity of the symptoms. Nothing definite upon which one can put a finger. The important point is not to diagnose a functional nervous headache until we are sure that there is not some real physical cause at the bottom.

(b) Organic nervous headache, due to brain lesions—tumor, abscess, meningitis, cerebral syphilis, etc. Their characteristic quality is their severity and persistence, even at night, also their unamenableness to any ordinary measures of relief. The diagnosis is, of course, confirmed by tests of the pupillary reflexes, and other similar nerve reactions.

In closing the author points out that, of course, eyestrain may be associated with any of the aforementioned types of headache, and that this eyestrain should be at once corrected. However one should not expect much relief from this correction when the headache is due to causes other than the eyestrain itself. C. C. K.

Effect of Brightness of Pre-Exposure and Surrounding Field on Breadth and Shape of the Color Fields for Stimuli of Different Sizes. Ferree, C. E., and Rand, G. American Journal of Opthalmology, November, 1924.

This paper is one of a series presented by Ferree and Rand on color vision. They conclude from experiments that when a color is fixed, due to the contrast of the surrounding field, there is a quantitative inhibition of chromatic excitation, i. e., white surroundings inhibit the color most and black least, in the central part of the retina.

There is also a qualitative inhibition which varies with the part of the retina and the degree of its adaptation. Pre-exposure will also enhance or reduce the central color depending on the tone and brightness of the color to which the retina is exposed. G. L. DuP.

A New Device for Testing the Color Sense. Nelson, Walter G. Journal American Medical Association. October 17, 1925.

This device which Nelson calls a "color wheel test" is about fifteen inches in diameter and about two inches high and can be made of either wood or metal. On the base are arranged three concentric discs and decreasing in size. On the base and each wheel are arranged small rectangles of colors in both the primary and intermediate shades. The base and wheels are covered with white enamel and the colors are of washable paint. Nelson describes the operation of the test as that of simply turning the wheels so as to match any given color and that success will be when four colored rectangles are in a row, all the same color but possibly varying in shade. There will be a confusion of colors when the test is improperly made. In addition to the color test Nelson uses his device for the enumeration of colors or all the shades of a color and as a means of instructing those that do not know colors not from color blindness but from color ignorance. E. O. F.

Endocrin Imbalances Complicating Refractive Cases. Ide, C. E. Eye, Ear, Nose and Throat Monthly. September, 1925.

Ide believes that many cases of refractive anomalies, which fail to secure complete relief from glasses, can be successfully treated by the administration of gland extracts. In his paper, he enumerates symptoms usually complained of by these patients as well as a number of illustrative cases which were all successfully treated by means of endocrine glands, stimulants or emollients. G. L. DuP.

REFRACTIVE COUNSEL

Dr. R. M. Peckham, Optometrist, of 111 Bank Street, Waterbury, Conn., will answer in these columns questions regarding difficult refractive cases. Our readers are requested to send him full particulars of each case, which will be published along with the reader's initials only. These questions and answers will appear monthly. Also in this department Dr. Peckham would like to receive the accounts of unusual cases which have been satisfactorily handled, which will be published, if accepted, over the practitioner's name.

Question: Woman, about 52 years old. Says "health is good," but seems a nervous wreck. Vision without glasses, right 20/C, left 20/XX. With correction, right —3.00 sph. ()—1.25 cyl. ax. 150=20/XXX, left —0.50 sph. =20/XX. Add for reading, O.U. +2.50=1 M. Snellen chart at from 10 to 18 inches. At distance, requires 10 dioptres base in before each eye and 2.50 dioptres base up over right eye. With red glass over left eye, white glass over right, fusion fluctuates with the above corrections. Could not check up very well on duction test after above correction was in place, as fusion was destroyed. Retinae both eyes free from opacities. Prominent oculist had given for reading, right plano, left +2.00 sph. Would you recommend exercises after glasses are made?

(H. L. K.)

Discussion: This case might be one of two quite distinct types. There are individuals who have never developed the sense of fusion. Fusion is a sense developed after birth. While we may inherit the desire for fusion, we are born without the function, it is not an innate part of our ocular functions. So we occasionally meet persons who always see double, they cannot be made to see single. They have no conception of what we call "binocular single vision."

But from the description given in the question, I should judge that it is a case of nervous disease, impaired nervous condition, loss of control over the ocular movements. In certain diseases arising from focal infections, the toxins spread throughout the body, and among other damages accomplished, the ability of the nerve fibres to carry messages is partially or wholly destroyed. Some of these infections are due to decayed tooth roots, to diseased tonsils and adenoids, to sinus infections, etc. We also have the autointoxication due to improper eating. Chronic constipation, sluggish liver and colon, improper and incomplete eliminations, imperfect metabolism and katabolism, follow. The body is filled with virulent poisons, the nerves are attacked, the nervous impulse is obstructed and delayed in its passage. High blood pressure, alcoholism, kidney diseases, typhoid fever, are among the diseases that will bring about manifestations of ocular muscular imbalances. It doesn't do to accept patient's statement as to the health. They may be very sick, even dangerously so, and be completely unaware of what is transpiring within their bodies.

One of the first symptoms of these forms of neuritis are imbalances of the type shown in this case, the inability to simultaneously innervate muscles that are normally associated.

It is rarely that so much imbalance is found as is displayed in this case. Hyperphorias almost always appear in these instances of impaired nervous conduction. It is impossible to correct this hyperphoria with prism, as the amount varies from hour to hour. The same is true of horizontal imbalance. It cannot be corrected by prisms, for it is not a true structural imbalance.

It is useless to give prism exercises or fusional exercises. There is nothing to work on, there is no starting point. Innervational exercises are useless in cases of this type. The neuritis must be cured before anything permanent in the way of glasses can be prescribed.

If it is not a diseased case, but comes under the first class mentioned, the age of the patient mitigates against success in developing a fusional faculty.

The oculist who prescribed reading glasses only, giving a plano lens to the right eye, probably did as well as anyone could. The data given is not as full as I should like to have it, but in such cases it is hard to put all the details into words. One senses the inner points of the difficulty without really giving them concrete definiteness in one's own mind.

An improperly innervated organ or muscle behaves very much like an imperfect organ or muscle. The success-

ful diagnostician is he who can differentiate between structural and innervational imperfections. The optometrist cannot spend too much time in the study of the nervous system, its anatomy, its functional laws, its diseases. We hope for the day when our schools shall devote no inconsiderable time to this subject, which is fully as important as the studies of physics and mathematics that now constitute the major part of the courses.

The strong prisms mentioned, 10 dioptres for each eye, cannot be worn in this case. Prisms cannot be worn when the fusion sense is undeveloped or its "functionation" of the extrinsic muscles impaired. The purpose of prisms is to balance innervation, prisms do not assist an imperfectly functioning fusion. In this case, where vision is mostly monocular, the objects viewed by the left eye would be displaced by the 10 dioptres prism so much that orientation would be disturbed. The prism would move an object at a meter's distance to the left a full meter. This would make the person feel that everything was turning to the left, the rest of the body would know to the contrary. The consequence would be dizziness and vertigo. The faculty of orientation would be completely at loss. Prisms cannot be worn unless there is uninterrupted vision with both eyes. (R. M. P.)

BOOK NOTICES

New Books for review should be sent to Dr. E. O. Fjelstad, 209 Yeates Building, Minneapolis, Minnesota. Only Books of such nature as to be of interest to optometrists will be used in this department. Optometric and Ophthalmic publications that have been issued in the past and which are still procurable through their publishers will also be reviewed, from time to time, as space permits.

DIAGNOSTICS OF THE FUNDUS OCULI. By **Edward L. Oatman, M.D.,** 1 volume of text with 234 illus. and 4 colored plates. 2 portfolios containing 79 stereograms and 8 diagnostic cards. Troy, N. Y. The Southworth Company. 1920.

This is a somewhat belated review but in line with the policy of this department in reviewing books which we believe are procurable and of interest to optometrists. This set is of interest because of its visual aid to the study of pathological conditions of the eyegrounds. Oatman has assembled photographic appearances of typical cases together with some of rarer occurence. The stereograms each carry a footnote or description and by referring to the volume of text one may get a more detailed account of the symptoms and treatment of the condition. One seldom or never meets typical cases of any pathological condition on account of the varying appearances of all cases, even the normal fundus varies, so theory alone is useless in the detection of any abnormal condition. The text is divided into fourteen chapters with Chapter One dealing with the various methods of examining the eye for the detection of abnormal conditions. Chapter Two describes the appearance of the normal fundus while the remaining twelve chapters deal with the deviations from the normal as shown in the stereograms.

The optometrist could well afford the procuring of this set of plates as an aid to his detection of pathological conditions, not with the idea of treating such, but as a means of knowing what the condition may be and how it would be treated by the ophthalmologist. E. O. F.

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DR. JACK I. KURTZ, Room 209 Yeates Building, Minneapolis, Minnesota.

The Journal has no objection to the reprinting by other magazines of any of its articles, provided such reprints are properly credited to the American Journal of Optometry.

THE TURNING POINT

The time is coming, and coming sooner than most optometrists expect, when a distinct change will have to be made in the character of the personnel in organized optometric societies. Today despite every effort on the part of our officers, our organized groups are, in most cases, merely drifting. A spasmodic effort to improve conditions is made here—and another there—but in the main, little constructive work has been done by either state or national society in the past several years.

There are several reasons for this, of course, but as we view the situation we are more and more inclined to believe that the trouble lies in the very character of some of the men composing the societies. By this we mean, our societies have in the past been so lax in their membership requirements and so zealous in their membership drives, that many a man, holding an optometric diploma and a registration certificate, has been admitted to membership who never should have been taken in, in the first place. Men whose conception of an honorable optometric practice is so warped that the general public has a hard time distinguishing him from our much-sung, old time friend, the famous "Solomon Levi of Salem Street."

The time has arrived for some straight talking and thinking. Conditions are changing and we can no longer continue as we have in the past. If our optometric societies are professional societies, what are the non-professional people of this type doing in them? We, in optometry, have for years stood these conditions, hoping against hope to raise these mental laggards to some sort of conception of the responsibility that is theirs, but this task seems hopeless. Instead of raising these commercially inclined "merchants-of-optometric-material" to a better level of practice, we have indeed been retarded by their mental inertia. Instead of making professional men of this group, they have indeed choked off most of the professional activities of our organizations until today many of our local societies devote more time to the discussion of the prices on solder jobs than they do to the newer developments of physiologic optics.

The time is coming, and sooner than most optometrists expect, when our optometric societies will be called upon to become purely professional societies, dealing with the scientific and technical phases of ocular work, and the membership in these societies should and will be limited to men with the proper

ideals and education. Men who have advanced with the times and who are ever ready to improve themselves and their practices.

To quote a few lines from a recent editorial by Bruce Barton:

"Immediately after the war I was asking Henry Ford for his views about the business future. 'I don't know,' he said. 'Nobody knows; but I can tell you this—it will be different. Only one thing is sure in this world, and that is **change.**'

"Men whose mental being is attuned to change, who keep themselves in a mood of alert expectancy, and who manage to guess right more than half the time, are the ones who do the biggest things and make the biggest money. But the world goes hard with those who have no desire except to keep everything quiet."

As we have said before, changes in thought are necessary in the optometrist, and in technic in his practice, and as this is true in the individual, it is likewise true in the optometric organization. Our society leaders should more fully realize this and should be ever working towards these ends. A cleaner optometric society means a better grade of optometrist. C. C. K.

VISUAL SURVEY WORK

That there is a growing demand for visual survey work is manifest. The work, however, is surrounded by many difficulties which will require the genius of the highest type of leaders with a broad experience and knowledge of the service which must be given to build for permanency. Hygiene and illumination together with the usual visual factors should receive most careful and scrutinizing attention with any industrial, commercial or educational visual survey and service. This is not a task for one individual, or even for a small group of individuals to undertake. It will require a corps of most carefully and skillfully trained men to accomplish this work satisfactorily.

We feel we are in a position to state that such an organization of the strictly ethical and professional type has been quietly, but effectively preparing for this work, and we hope to give more in subsequent issues as to activities of this welcome movement.

F. P. B.

OPTOMETRIC RESEARCH

The future of optometry, as in any other science, lies in progressive research work. But, how to develop the desire and ability for such work is a difficult endeavor.

Research, as set forth in the Encyclopedia Britannica, is "applied more particularly to investigations of those who devote themselves to the study of pure as opposed to applied science, to the investigation of causes rather than to practical experiment," thus, while the optometrist "who treats an individual case" of muscular imbalance "may add to our sum of knowledge" of the condition, a "body of trained investigators" would work on different lines. Research is also "inquiry directed to the discovery of truth based on original and first-hand study of authorities or experiments."

Optometry, it is said, is somewhat limited in its sphere (that is, it is limited if spectacle fitting is the only idea), but the thought of that should not cause optometrists to wish to overstep these boundaries. In fact, there is no great need to do this as optometry still has much to unfold for us. There is more to be learned about physiological optics and better objective means of making ocular examinations must be devised. In the field of illumination there is much to be developed in its relation to ocular reactions from an optometric standpoint. Then, again, a field but little touched, if at all, is that of preventive optometry. We could go on reciting numerous topics upon which research could be made, all in the interest of optometry.

It is too easy to follow the line of least resistance and let the case, which may appear the least bit difficult, go by. Just because others considered the case as not permitting of further treatment is no reason why you should do the same. There are but few who wish to devote their time to research work. It is a comparatively slow and tedious task requiring considerable constructive thinking and delving into the literature. The result is more of self gratification to the investigator that he has solved his problem and able to place it before his fellows.

At present there is no assistance for the student with the desire, but financially unable, to carry on this work. To our knowledge there is only one labor-

atory doing any extensive work on any purely optometric phase, that at Dartmouth College. For some time investigators have been checking the past work on the principal points of the eye and have encountered some interesting things concerning the aberrations, spherical and chromatic, and the distortions of the human eye. It developed that it would be interesting to make up a photographic unit embodying the aberrations, distortions, focal lengths, etc., of the average human eye. The result was a much complicated lens arrangement and the resulting picture was far from what would be accepted by photographers. The work is being carried further and we understand that a definite program has been outlined for some years to come on other phases of optics. All of which is of interest to optometry.

For the benefit of the student desirous of engaging in research the present optometry schools are fitted to give this aid on a scale which can be developed. Practically all optometry schools, and all of them should, have a clinic in connection. Many cases enter the clinics which make excellent subjects for study. Then, again, the libraries of the schools contain literature in which the student may check back to find what has been developed concerning the case which has been brought to his attention.

In the schools there could be an organized laboratory effort and, between schools, a co-ordination of work. This co-ordination should be formed with other laboratories doing allied work of interest to optometry. Progress could then be made. It is questionable whether or not a chair for research only should be formed in the schools, as, after all, the best instructor is the one who is an investigator as well. It is a safe assumption, though, that the schools with research laboratories would draw the better trained men as students, knowing they would receive the better training. The student's foundation for optometric research should be laid in mathematics, physics, physiology, physiological psychology, anatomy of the eye and the nervous system.

Research need not be confined to the school laboratories as the practicing optometrist has ample opportunities for individual research. He can find an aid in his individual researches by obtaining a comprehensive and detailed "clinical history" or case report of the patient. Over a period of years and by means of a cross comparison of the various cases much of interest, and the reason for the need of detailed histories, will be found. The difficulty arising is in being able to go through the literature to find if something new has really been brought to his attention or if the results have been published. The circulating libraries, as proposed by the American Optometric Association and the various state societies, will be a great help in this sense. Of further assistance would be a research bureau as a part of the Department of Education of the A. O. A. supervised by an intelligent secretary trained in optometry, clinical and literary, where optometrists could receive information which would prevent duplication of efforts.

The endowment value of research was little understood a few years ago but at present there are many established research laboratories for various phases of science and kinds of subjects, endowed by wealthy patrons. We hope that at some time in the near future someone sees fit to definitely establish optometric research by setting aside a certain sum for students desiring to go in for this sort of study.

The student and the practicing optometrist should keep the point of view of the investigator even though the so-called "practical" optometrists may sneer at what they term "scientific" men. It is safe to say that the patients of the former are less liable to get satisfaction than those of the latter and that the successful refractionists can owe much of their success to their desire and ability to study, investigate, and, in a sense, "dig in." E. O. F.

THE A. O. A. MESSENGER

National Secretary Kiekenapp announces the immediate establishment of a twelve or sixteen page monthly organ to be called the A. O. A. Messenger. This magazine will be edited from his office and will be devoted to A. O. A. departmental affairs. It will be mailed monthly, without cost to all members of the American Optometric Association.

We believe this to be a splendid step in the right direction. The A. O. A. has long needed a medium in which its work could be properly presented

to the profession in a way suitable to the officers of that body, and not in a way to suit the whims of independent editorial staffs. In this new magazine the various activities of our National Society will be given full publicity and the department chiefs will have ample opportunity to explain their work to the optometrists of America. This alone was sufficient reason for the establishment of such a society organ, but the new venture will prove even more profitable to the A. O. A., for another reason, to-wit: It will bring the officers and directors of this large National organization in closer touch with optometrists throughout the country, and in this it will fulfill its greatest mission.

Secretary Kiekenapp is to be congratulated and complimented on his energy and courage in establishing an organ of this character and the directors also, in backing this good work. The staff of the AMERICAN JOURNAL OF OPTOMETRY joins in welcoming this new publication to the ranks of optometric journals and wishes it the best of success.

C. C. K.

REPORTS AND ANNOUNCEMENTS OF SOCIETIES

STATE EDITORS

E. B. ALEXANDER, Oklahoma
A. S. ANDERSON, North Dakota
J. F. ANDREAE, Maryland
D. A. KINNEY, Iowa
H. B. KOLLOFSKI, Minnesota
C. A. PERRIGO, Nebraska

Reports of Society Proceedings in Iowa should be sent to Dr. D. A. Kinney, Charles City; in Maryland to Dr. J. F. Andreae, Baltimore; in Minnesota to Dr. H. B. Kollofski, St. Paul; in Nebraska to Dr. C. A. Perrigo, Freemont; in North Dakota to Dr. A. S. Anderson, Williston, and in Oklahoma to Dr. E. B. Alexander, Duncan.

OFFICIAL BULLETIN OKLAHOMA SOCIETY

A board of directors meeting of the Association was held October 4th at the Skirvin Hotel, Oklahoma City. All members of the board were present, also by special invitation, Dr. R. A. Dieman, second vice-president of the Association, and Dr. Frank H. Robertson, secretary of the board of examiners. General Association matters were taken up.

Dr. J. A. Clay, Durant, chairman of the Bryan County Optometric Society, is enforcing the optometry law in his district. September 18th Dr. Clay filed charges against one Joe Green of Boswell for violation of the optometry law. Green had been giving glasses with newspaper subscriptions. He made bond in the sum of $500.00 but later went back and plead guilty. The fine and costs totaled $32.50. Dr. Clay is now working on some more cases and says in part: "I feel it my duty to the public and to my profession to keep Bryan county clean of optometry law violators, and this I am going to do if it is humanly possible."

Dr. Edith Boswer, Fairfax, chairman of the Osage County Optometric Society, caused charges to be brought against Dr. C. C. Layman of Tulsa, a registered optometrist, for peddling in violation of a city ordinance of Fairfax. Dr. Layman plead guilty and was fined $5.00 and costs.

License revoked. The Oklahoma State Board of Examiners in Optometry, in a special meeting held at Fairfax, Oklahoma, October 20th, revoked the license to practice of Dr. C. C. Layman, who had been charged with violating the section of the Code of Ethics of the state board, prohibiting the house-to-house canvassing for business. The charge was filed by Dr. E. B. Alexander, secretary of the Oklahoma Association of Optometrists, and was prosecuted by Orvel Johnson, who is also attorney for the American Optometric Association. Mr. G. B. Fulton, assistant attorney general, represented the state as legal adviser of the board of examiners. The charges grew out of the practice of Dr. Layman, who plead guilty as charged, and who frankly admitted that he had been canvassing from house-to-house for about twenty years in Oklahoma. After the trial Dr. E. E. Russell, president of the state board, and Dr. Frank H. Robertson, secretary, announced that the board would meet at any time and at any place in the state necessary to prevent the practice of optometry in an unprofessional or unethical way.

Dr. Verne E. Bowers, president of the Association, and Dr. Alexander, secretary, in company with Col. Orvel Johnson, legal adviser of the A. O. A., disposed of a very important case of the violation of the optometry laws, on October 5th, at Oklahoma City, when they made complaint to J. K. Wright, county attorney of Oklahoma county, charging S. H. Kress & Co., proprietors of a chain system of five and ten cent stores throughout the nation, of using a "test card" in the sale of glasses in their optical department.

The county attorney, through his assistant, Mr. L. W. Harrod, sent for Mr. R. F. Pixley, manager of the Kress establishment, who upon being confronted with the charges filed, admitted the practice as alleged.

As the result of a conference with the officers of the Association the legal adviser of the A. O. A., and the county attorney,

Mr. Pixley agreed to immediately cause the use of the test card to be discontinued in the Oklahoma City store and all other Kress stores in Oklahoma.

Post-Graduate Clinic

For the benefit of the membership of this Association, an educational post-graduate clinic will be held at Tulsa, January 13-14. Dr. Arthur E. Hoare of California, a certified optometric clinician, will be the clinician in charge. Dr. Hoare is one of the leading optometrists of the United States, he has conducted clinics at the last two national conventions. All of the expenses of the clinic will be borne by the Oklahoma Association. There will be no registration fee. This will be an intensified post-graduate course in optometry. Dr. Hoare demonstrates practical routine optometric procedure as well as advanced methods. No optometrist in Oklahoma can afford to miss this clinic. Begin to make arrangements now to attend it, January 13th and 14th.

DR. E. B. ALEXANDER.

MINNESOTA SEMI-ANNUAL MEETING

Dr. F. P. Barr, of Rochester, N. Y., was the lecturer at a one-day post-graduate meeting of the Minnesota State Association of Optometrists at the Nicollet Hotel, Minneapolis, on October 5th. He delivered two very interesting and instructive lectures on campimetry, describing the instrument and its possibilities in uncovering lesions and abnormalities of the tunics of the eye and of the optic nerve.

Dr. E. H. Kiekenapp, national secretary, outlined the educational and administrative plans of the A. O. A. for the coming year. The Association indorsed the plan and pledged its support.

Dr. C. G. Mack, president, acted as toastmaster at the banquet closing the meeting. Dr. J. I. Kurtz, secretary, announced the results of the recent membership drive, during which seventeen names were added to the Association roster. Dr. H. B. Kollofski, of St. Paul, brought in the most new members and received the first prize, Dr. Ryer's new book on "Ophthalmometry." Other prizes were, "Symptomatology," by Weisman; "Oculo-Prism Treatment," by Robinson, and "Cross Eyes," by Higley.

Successful Candidates of Minnesota Board

The following optometrists were successful in passing the recent examination in optometry given by the Minnesota State Board of Optometry. The examination was held in St. Paul, October 6th, 7th and 8th. Drs. C. N. Albertson, M. Burnham, R. F. Munro, D. I. Threinen and D. M. Larson, of St. Paul; Drs. H. B. Dunning, A. F. Havekott, R. O. Lindquist, L. H. Price and G. A. Stone, of Minneapolis; Dr. L. J. Hirschfelt, of St. Cloud, Minn.; Dr. M. Moore, of Plainfield, Wis., and Dr. W. B. Southard, of Milwaukee, Wis.

New Members of Minnesota Society

The following joined the Minnesota Association during the recent membership drive: Drs. Elwin More, Blue Earth; Wm. A. Nebelung, Crookston; John C. Veden, Wadena; E. R. Two, Anoka; E. W. Carlson, Fergus Falls; F. Bromley, Austin; E. F. Follendorf, Little Falls; H. C. Nerbovig, Mankato; A. G. Skogg, Duluth; F. E. Ackerman, R. A. Ackerman, C. P. Rochat, G. C. Campbell, E. E. Jones, G. J. Schmidt, H. J. Girvin, J. F. Paterson, all of St. Paul.

OPTOMETRIC PUBLICITY AMONG SCHOOL TEACHERS IN NORTH DAKOTA

In line with the policy adopted last year of "educating the educators" first, the North Dakota Optometric Association is again circulating literature among school teachers dealing with eye-sight conservation and the relationship of the optometrist to eye care.

The subject-matter, in dealing with eye care, points out particularly the various symptoms that result from latent errors of refraction not indicated by vision less than normal. It has been found that the school teacher who has an intelligent understanding of the symptoms of eyestrain is in a better position to detect hypermetropia and low astigmatic errors, due to her continued observance of the child in the classroom, than is the school nurse with only a superficial vision test.

The publicity material also explains the work of the optometrist and the process of evolution of the science of optometry from that of optics. It is well that the teacher be conversant with the terms optometry and optometrist should discussion regarding eye care ever arise in the classroom.

It has been found in North Dakota that the plan of selling optometry to the teaching profession through the distribution of dignified educational literature has a more far-reaching influence, in proportion to its cost, than any other publicity method.

DR. A. S. ANDERSON,
Secretary.

New Members of Minnesota Board

Dr. A. C. Hoffman, optometrist of Minneapolis, was recently appointed a member of the Minnesota state board of optometry by Governor Christianson. Dr. E. Kiekenapp, optometrist of Faribault, was reappointed to the board at the same time by the governor. Dr. Kiekenapp has served as secretary of the board for several terms.

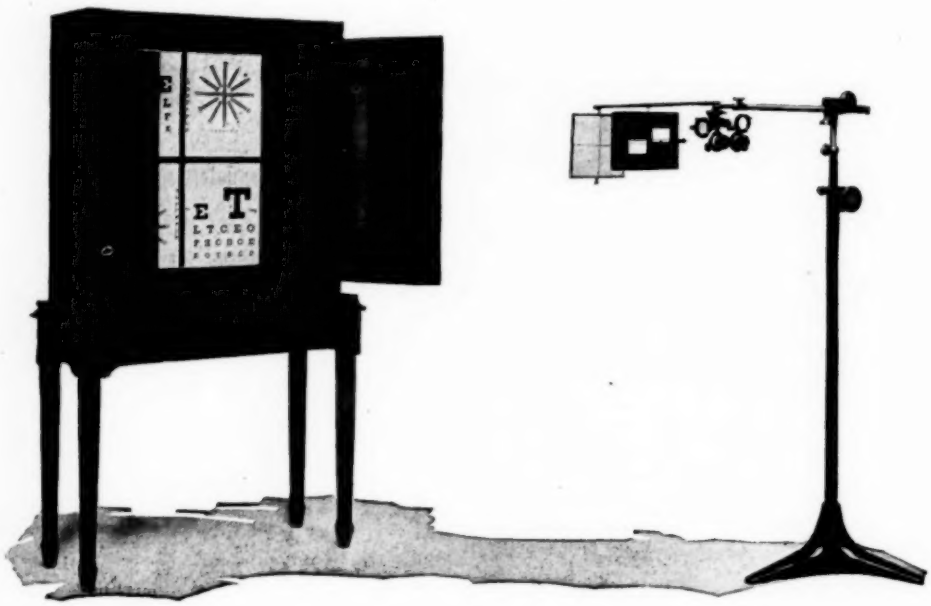
NEBRASKA MEMBERSHIP DRIVE

An intensive membership campaign is being conducted at present by the Nebraska State Association. Letters setting forth the advantages to be gained by joining the State and National Associations have been mailed to prospective members. Mention was made of the fact that all members of the Nebraska State Association receive monthly the American Journal of Optometry at no additional cost. Copies of this publication have been mailed to all prospective members.

Dr. Fred Gunder, secretary of the Association, states that the officers are pleased with the co-operation they have received from the members. According to Dr. L. C. Hewitt, president, this campaign will be carried until every worthwhile optometrist in the state has been enrolled as a member.

YOU WILL MEASURE MUSCLE TONUS NOW!

Because it is no longer difficult!



THE HEMISENSORY BINOCULOMETER makes muscle testing a pleasure to both patient and examiner; it is no longer a **Routine**—it is a NECESSITY!

What the fogging system is to the ciliaries, the HB test is to the extrinsics; it is the missing link in the evolution of ocular examination. It is the first real diagnostic test, combining, as it does, the tests for errors of refraction, and muscle imbalance. Both tests are made at one and the same time.

No painful double images, no befuddling streaks, no burning points of light, no unnatural images, no mechanical imperfections introduced; instead, **one instrument, one chart**—no more, no less.

The Hemisensory Binoculometer is the little giant of the refracting room; a quiet, sedate instrument lending professional atmosphere, it makes special appeal to the successful man who has higher ideals than merely to "impress the public."

It is the instrument you CAN afford **to own,** the method you CAN NOT afford to **be without!** Descriptive matter and prices on request.

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